
The role of chorionic cytotrophoblasts in the smooth chorion fusion with parietal decidua.

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Public Summary:

BACKGROUND/PURPOSE: Human placenta and chorion are rapidly growing transient embryonic organs built from diverse cell populations that are of either, ectodermal [placenta and chorion specific trophoblast (TB) cells], or mesodermal origin [villous core and chorionic mesenchyme]. The development of placenta and chorion is synchronized from the earliest phase of implantation. Little is known about the formative stages of the human chorion, in particular the steps between the formation of a smooth chorion and its fusion with the parietal decidua. **METHODS:** We examined the available histological material using immunohistochemistry, and further analyzed in vitro the characteristics of the recently established and reported human self-renewing trophoblast progenitor cells (TBPC) derived from chorionic mesoderm. **RESULTS:** Here, we provided evidence that the mechanism by which smooth chorion fuses with parietal decidua is the invasion of smooth chorionic cytotrophoblasts (schCTBs) into the uterine wall opposite to the implantation side. This process, which partially replicates some of the mechanisms of the blastocyst implantation, leads to the formation of a new zone of contacts between fetal and maternal cells. **CONCLUSION:** We propose the schCTBs invasion of the parietal decidua as a mechanism of 'fusion' of the membranes, and that schCTBs in vivo contribute to the pool of the invasive schCTB.

Scientific Abstract:

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